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10/649,936	08/28/2003	Kikuo Hayashi	991334	6093

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EXAMINER	
BROWN JR, NATHAN H	

ART UNIT	PAPER NUMBER
2121	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/649,936	HAYASHI ET AL.	
	Examiner	Art Unit	
	Nathan H. Brown, Jr.	2121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *(3)* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 March 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *29-129* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *95-127* is/are allowed.

6)☒ Claim(s) *29-94,128 and 129* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Examiner's Detailed Office Action

1. This Office Action is responsive to the communication for application 10/649,936, filed March 29, 2007.

2. Claims 29-129 are pending. Claims 59 and 79, are currently amended. Claim 129 is new. Claims 29-58, 60-78 and 80-128 are original.

3. After the previous office action, claims 29-69, 71-94, and 128 stood rejected. Claims 70 and 95-127 were allowed.

4. All rejections under 35 U.S.C. § 101 are withdrawn.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 29-35, 44-68, 77-94, and 128 are rejected under 35 U.S.C. 102(b) as being anticipated

by *Bentley et al.*, "Conceptual Evolutionary Design by a Genetic Algorithm", 1996.

Regarding claims 29 and 128. (Currently Amended) *Bentley et al.* teach a genetic design method (*see* p. 1, col. 2, "a prototype system capable of creating new designs and iteratively optimizing these designs, using a genetic algorithm") and a computer-readable medium encoded with processing instructions (*see* above, *Examiner interprets "a prototype system capable of creating new designs and iteratively optimizing these designs, using a genetic algorithm" to be a computer implemented system comprising a computer-readable medium encoded with processing instructions.*) for executing a genetic design method, comprising:

selecting a parent profile representing an outline for designs the outline delineating a shape of a physical structure (*see* Abstract, *Examiner interprets a "conceptual design" to be a profile.*);

dividing the parent profile into segments (*see.* pp. 3-4, *Examiner interprets a 'spatial partitioning' to divide the parent profile into segments.*), each of the segments having at least one dimensional characteristic (*see* p. 4, col. 1, para. 1, "a new variation was created for this work. This combines ideas from the commonly used constructive solid geometry (CSG) and standard spatial partitioning methods, by allowing every partition, or primitive, to vary in size and position, and to be intersected by a plane of variable orientation...As with standard spatial partitioning representations, a design is represented by a number of these non-overlapping primitives.", *Examiner interprets* "non-overlapping primitives" *to be segments and "size and position" to dimensional characteristics.*);

selecting at least one segment of the divided segments (*see* Abstract, *Examiner interprets "assembling new designs out of smaller, previously evolved components" to comprise selecting at least one segment of the divided segments (i.e., "smaller, previously evolved components").*); modifying the at least one dimensional characteristic of the selected at least one segment (*see* p. 4, col. 1, para. 2, "fixing all parameters specifying depth, two-dimensional designs can be created", *Examiner interprets* "fixing all parameters specifying depth" *to be modifying at least one dimensional characteristic of a selected segment.*);

and evolving the parent profile using a genetic algorithm to produce an offspring profile (*see* pp. 8-10, §5.3, *Examiner interprets "Evolution from Scratch" to comprise evolving the parent profile using a genetic algorithm to produce an offspring profile.*), including evolving the modified at least one dimensional characteristic of the selected at least one segment (*see* p. 8, Fig. 6, *Examiner notes that each (attractor) prism evolved by "fixing all parameters specifying depth" and using a plane to 'slice' portions off a square 'primitive' (see p. 7, col. 1, para. 1).*), the offspring profile representing a new outline for the design the new outline delineating a new shape of the physical structure (*see* p. 9, Figs. 8-11, *Examiner interprets each prism in Figs. 8-11 to be a offspring profile representing a new outline for the design the new outline delineating a new shape of the physical structure.*).

Regarding claim 62. (Previously Presented) A computer-implemented genetic design apparatus (*see* Abstract, *Examiner interprets the "prototype design system" to be a computer-implemented genetic design apparatus.*) comprising: a first selection device for selecting a parent profile representing an outline for design, the outline delineating a shape of a physical structure (*see* p.

5, col. 2, para. 2, *Examiner interprets "three main modules of evaluation software" to be a first selection device for selecting a parent profile.*); a segmentation unit for dividing the parent profile into segments, each of the segments having at least one dimensional characteristic; a second selection device to select at least one segment of the divided segments (*see* p. 5, col. 1, para. 1 and pp. 3-5, §4.1 and §4.2, *Examiner interprets the "GA" to be the segmentation unit.*); a modifying unit to modify at least one dimensional characteristic of the selected at least one segment (*see* p. 5, col. 1, para. 1 and p. 9, Fig. 8, *Examiner interprets the "GA" to be the modifying unit.*); and a genetic evolution unit for evolving the parent profile using a genetic algorithm to produce an offspring profile, the genetic evolution unit evolving the modified at least one dimensional characteristic of the selected at least one segment, the offspring profile representing a new outline for the design, the new outline delineating a new shape of the physical structure (*see* p. 5, col. 1, para. 1, *Examiner interprets the "GA" to be the genetic evolution unit.*).

Regarding claims 30 and 63. (Previously Presented) *Bentley et al.* teach a genetic design method and apparatus as claimed in the parent claims, wherein the segments of the profiles represent curves and lines of contours of externally visible components of the structure (*see* p. 5, Fig. 2, *Examiner notes that each primitive in the profile consists of curves and lines of a 2D contour.*).

Regarding claim 31 and 64. (Previously Presented) *Bentley et al.* teach a genetic design method and apparatus as claimed in the parent claims, wherein at least one of the profiles includes at least one dimensional characteristic pertaining to the overall profile (*see* p. 3, Fig. 1, *Examiner*

notes that the position of the clipping plane includes at least one dimensional characteristic pertaining to the overall profile.).

Regarding claim 32 and 65. (Previously Presented) *Bentley et al.* teach a genetic design method and apparatus as claimed in the parent claims, wherein at least one of the profiles includes different levels of detail (*see* p. 5, col. 1, para 2, *Examiner notes that "a two-primitive symmetrical design (i.e. a design that has been reflected in a plane to make it symmetrical) requires only a partial*
design of one primitive (nine parameters)" has a different level of detail than "a two primitive design" which requires "eighteen parameters".).

Regarding claim 33 and 66. (Previously Presented) *Bentley et al.* teach a genetic design method and apparatus as claimed in the parent claims, wherein at least one of the profiles includes a grouping of the segments that represents a component of the structure (*see* p. 11, Fig. 15, *Examiner notes that the "almost perfect porro prism (bottom)" and the "Almost perfect abbe prism (top)" are components which group two prism segments.*).

Regarding claim 34 and 67. (Previously Presented) *Bentley et al.* teach a genetic design method and apparatus as claimed in the parent claims, wherein at least one of the profiles includes a grouping of the segments that represents a component of the structure, the grouping including at least one dimensional characteristic pertaining to the grouping (*see* p. 11, Fig. 15, *Examiner notes that the "almost perfect porro prism (bottom)" and the "Almost perfect abbe prism (top)" include at least one dimensional characteristic, size, pertaining to the grouping.*).

Regarding claim 35 and 68. (Previously Presented) *Bentley et al.* teach a genetic design method and apparatus as claimed in the parent claims, wherein at least one of the profiles includes at least two groupings of the segments that respectively represent at least two components of the structure (*see* p. 11, Fig. 15, *Examiner notes that the "almost perfect porro prism (bottom)" and the "Almost perfect abbe prism (top)" are two groupings of segments that respectively represent two components of the structure.*), the profile including a relational parameter pertaining to a relationship between the at least two groupings (*see* above, *Examiner that the 90 degree rotation of the "almost perfect porro prism (bottom)" from the "Almost perfect abbe prism (top)", in the y-z plane, is a relational parameter pertaining to a relationship between the at least two groupings.*).

Regarding claim 44 and 77. (Previously Presented) *Bentley et al.* teach a genetic design method and apparatus as claimed in the parent claims, further comprising modifying (with a modification unit) the at least one dimensional characteristic for at least one of the segments (*see* p. 9, Fig. 8, "Using a single primitive of the representation, a variety of differently oriented prisms were successfully evolved,...". *Examiner interprets the "GA" to be the modifying unit (see p. 5, col. 1).*).

Regarding claim 45 and 78. (Previously Presented) *Bentley et al.* teach a genetic design method and apparatus as claimed in the parent claims, further comprising modifying the at least one dimensional characteristic pertaining to the overall profile (*see* p. 10, col. 1, §*RHOMBOID PRISM*

Fig. 12, "...parameters specifying depth and position on the Z-axis were simply initialized[sic] with a set value instead of a random value,...", *Examiner notes that depth pertains to whether the overall profile is 2-D or 3-D.*).

Regarding claim 46 and 79. (Previously Presented) *Bentley et al.* teach a genetic design method and apparatus as claimed in the parent claims, further comprising modifying at least one of the profiles to identify a grouping the segments that represents a component of the structure (*see* p. 9, col. 2, §*DEROTATING PRISMS*, Fig. 11, *Examiner assumes that the claim means: modifying at least one of the profiles to identify a grouping --of-- segments that represents a component of the structure, i.e., evolving new components (i.e., identifying a new grouping of segments) by evolving the design. Examiner notes that in evolving the profile of a derotating prism to turn an image upside down, the GA was able to exploit a loop-hole in the design specification and satisfy the requirement by generating a ('cheat') segment grouping forming an unusual 'K' prism component (Fig. 11 (top)) to turn the image upside down.*).

Regarding claim 47 and 80. (Previously Presented) *Bentley et al.* teach a genetic design method and apparatus as claimed in the parent claims, further comprising: modifying at least one of the profiles to identify a grouping of the segments that represents a component of the structure (*see* above); and specifying at least one dimensional characteristic pertaining to the grouping (*Examiner asserts that modifying at least one of the profiles inherently forces a modification of at least one dimensional characteristic pertaining to the grouping of segments since a profile consists of segments (see above) which contain dimensional (e.g. height) information.*).

Regarding claim 48 and 81. (Previously Presented) *Bentley et al.* teach a genetic design and apparatus as claimed in the parent claims, further comprising modifying the dimensional characteristic pertaining to the grouping (*see* p. 4, col. 1, §4.2, "By fixing all parameters specifying depth, two-dimensional designs can be created in addition to three dimensional designs.", *Examiner asserts that the depth of each segment is a characteristic pertaining to the grouping of segments (i.e., whether the grouping is 2-D or 3-D).*).

Regarding claim 49 and 82. (Previously Presented) *Bentley et al.* teach a genetic design method and apparatus as claimed in the parent claims, further comprising: modifying at least one of the profiles to identify at least two groupings of the segments that respectively represent at least two components of the structure (*see* p. 11, §5.4, Figs. 14-15, *Examiner notes that the GA evolved the profile of randomly positioned right-angle prisms (Fig. 14) into an abbe prism and a porro prism (Fig. 15) which are capable of being combined into various optical structures.*); and specifying a relational parameter pertaining to a relationship between the at least two groupings (*see* p. 11, Fig. 14, §5.4, *Examiner asserts that relative position is a relational parameter pertaining to a relationship between the at least two groupings.*).

Regarding claim 50 and 83. (Previously Presented) *Bentley et al.* teach a genetic design method and apparatus as claimed in the parent claims, further comprising modifying the relational parameter pertaining to the relationship between the at least two groupings (*see* above).

Regarding claim 51 and 84. (Previously Presented) *Bentley et al.* teach a genetic design method and apparatus as claimed in the parent claims, further comprising modifying the relationship between the at least two segments (*see* p. 6, col. 1-2, *MODULE 3: UNFRAGMENTED*, "This criterion is implemented as a soft constraint, with fragmented designs being penalised very heavily."

Examiner asserts that fragmentation is a relationship between at least two segments, which is modified by the GA to avoid design penalty.).

Regarding claim 52 and 85. (Previously Presented) *Bentley et al.* teach a genetic design method and apparatus as claimed in the parent claims, wherein said evolving isolates at least one of the segments of the parent profile from variation (*see* p. 4, col. 1, §4.2, "By fixing all parameters specifying depth, two-dimensional designs can be created...").

Regarding claim 53 and 86. (Previously Presented) *Bentley et al.* teach a genetic design method and apparatus as claimed in the parent claims, wherein said evolving isolates the at least one dimensional characteristic pertaining to the overall profile from variation (*see* above).

Regarding claim 54 and 87. (Previously Presented) *Bentley et al.* teach a genetic design method and apparatus as claimed in the parent claims, wherein the grouping is part of the parent profile (*Examiner notes that a parent profile can have more than one segment and thus a grouping (see figures).*), and wherein said evolving isolates the grouping from variation (*Examiner asserts that since depth parameters can be fixed to restrict variation of a design to two dimensions (see*

above), all of the segment groupings in a design can be isolated from variation in a third or higher dimension.)

Regarding claim 55 and 88. (Previously Presented) *Bentley et al.* teach a genetic design method and apparatus as claimed in the parent claims, wherein said evolving evolves only the segments selected by a user (*see* p. 4, col. 1, §4.2, *Examiner notes that all executions of the GA involve a user selected starting profile which consists, therefore, of user selected segments.*).

Regarding claim 56 and 89. (Previously Presented) *Bentley et al.* teach a genetic design method and apparatus as claimed in the parent claims, wherein the parent profile includes at least two groupings of the segments that respectively represent at least two components of the structure (*see* p. 11, col. 1, §5.4, Fig. 14, *Examiner interprets all prisms in the starting profile to be components.*), and wherein said evolving evolves only the segments of the grouping selected by the user (*see* above).

Regarding claim 57 and 90. (Previously Presented) *Bentley et al.* teach a genetic design method and apparatus as claimed in the parent claims, wherein the grouping is part of the parent profile (*Examiner notes that a grouping of segments is inherently part of any profile.*), and wherein said evolving evolves the at least one dimensional characteristic pertaining to the grouping (*see* p. 11, col. 1, §5.4, "No genes are fixed, allowing the system to determine not only the positions of the components, but also optimize the components themselves if required.", *Examiner notes that*

allowing the system to determine positions of the components involves evolving at least one dimensional characteristic (e.g., x) pertaining to the grouping of segments representing prisms.).

Regarding claim 58 and 91. (Previously Presented) *Bentley et al.* teach a genetic design method and apparatus as claimed in the parent claims, wherein the at least two groupings are part of the parent profile (*see* above), and wherein said evolving evolves the relational parameter pertaining to the relationship between the at least two groupings (*see* above).

Regarding claim 59 and 92. (Currently Amended)) *Bentley et al.* teach a genetic design method and apparatus as claimed in the parent claims, wherein the at least two groupings are part of the parent profile (*Examiner notes that a grouping of segments is inherently part of any profile.*), and wherein said evolving evolves the relational parameter to the relationship between the at least two groupings (*Examiner asserts that if evolving varies the normal of the clipping planes of either segment, evolving evolves the relational parameter to the relationship between the at least two groupings.*).

Regarding claim 60 and 93. (Previously Presented) *Bentley et al.* teach a genetic design method and apparatus as claimed in the parent claims, wherein said evolving accounts for a user preference to keep at least one of the segments (unchanged during the evolving) (*see* p. 5, col. 2, *MODULE 1: LIMITS UPON SIZE, Examiner notes that evolution under the user preferred, 'soft constraint' of limits upon size, keeps both segments in Fig. 2 while varying their size.*).

Regarding claim 61 and 94. (Previously Presented) *Bentley et al.* teach a genetic design method and apparatus as claimed in the parent claims, wherein said evolving accounts for a user preference to keep the grouping (unchanged during the evolving) (*see* p. 5, col. 2, *MODULE 1: LIMITS UPON SIZE, Examiner notes that evolution under the user preferred, 'soft constraint' of limits upon size, keeps the segment grouping in Fig. 2 while varying its size.*).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 36 and 69 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Bentley et al.* in view of *Jones et al.*, "Development and Validation of a Genetic Algorithm for Flexible Docking", 1997.

Regarding claims 36 and 69. (Previously Presented) *Bentley et al.* teach a genetic design method and apparatus as claimed in the parent claims, wherein at least one of the profiles includes a relationship between at least two of the segments. *Bentley et al.* do not teach the relationship including a radius parameter. However, *Jones et al.* do teach the relationship including a radius

parameter (*see* p. 739, para. "Initialisation[sic] of the protein and of the ligand"). It would have been obvious at the time the invention was made to persons having ordinary skill in the art to combine *Bentley et al.* with *Jones et al.* to specify component position constraints simply.

9. Claims 37 and 70 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Bentley et al.* in view of *Renner*, "Geometric Optimization with Genetic Algorithms", 1998.

Regarding claims 37 and 70. (Previously Presented) *Bentley et al.* teach a genetic design method and apparatus as claimed in the parent claims. *Bentley et al.* do not teach profiles of an automobile. However, *Renner* teaches optimization of an automobile body using a genetic design method (*see* last para.). It would have been obvious at the time the invention was made to persons having ordinary skill in the art to use the variant of constructive solid geometry taught in *Bentley et al.* to perform automobile body optimization with genetic algorithms as *Renner* teaches for the purpose of handling the complex goal functions with realistic effort (*see* abstract).

10. Claims 38-40 and 71-73 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Bentley et al.* in view of *Faccenda et al.*, "A Combined Simulation/Optimization Approach To Process Plant Design", 1992.

Regarding claims 38 and 71. (Previously Presented) *Bentley et al.* teach a genetic design method and apparatus as claimed in the parent claims. *Bentley et al.* do not teach displaying at least one

of the profiles. *Faccenda et al.* do teach displaying (*see* p. 1258, col. 2, para. 3, "The simulator/optimizer output can be analyzed via time plots, histograms, and a several types of business graphics.") at least one of the profiles (*see* p. 1258, col. 1, para. 1, "Candidate solutions (individuals) are represented by their parameter values (genetic code).", *Examiner interprets an "individual" to be a profile.*).

Regarding claims 39 and 72. (Previously Presented) *Bentley et al.* teach a genetic design method and apparatus as claimed in the parent claims. *Bentley et al.* do not teach displaying at least one of the profiles at one of the different levels of detail. However, *Faccenda et al.* do teach displaying at least one of the profiles (*see* above) at one of the different levels of detail (*see* p. 1260, col. 2, last para., "Detailed statistics are reported through a series of graphical views...which the user can navigate...different financial pictures of the facility performance...down through detailed information on delivery times of specific products...").

Regarding claims 40 and 73. (Previously Presented) *Bentley et al.* teach a genetic design method and apparatus as claimed in the parent claims. *Bentley et al.* do not teach displaying the grouping. *Faccenda et al.* do teach displaying the grouping (*see* p. 1258, col. 2, 4 USER INTERFACE, *Examiner interprets "data elements in the analysis" to be a grouping.*).

It would have been obvious at the time the invention was made to persons having ordinary skill in the art to combine *Bentley et al.* and *Faccenda et al.* to provide visual representation of

profiles at different levels of detail for the purpose of determining if the optimal solution is valid for the combination (*see* p. 1260, §5.3, first para.).

11. Claims 41, 42, 74, and 75 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Bentley et al.* in view of *Bedwell et al.*, "Artificial Evolution of Algebraic Surfaces", 1999.

Regarding claims 41 and 74. (Previously Presented) *Bentley et al.* teach a genetic design method and apparatus as claimed in the parent claims. *Bentley et al.* do not teach generating a family tree identifying successive generations of the parent and offspring profiles. However, *Bedwell et al.* do teach generating (and thus a generator for) a family tree identifying successive generations of the parent and offspring profiles (*see* §3.2, col. 1, para. 2, Fig. 3-2). It would have been obvious at the time the invention was made to persons having ordinary skill in the art to combine *Bentley et al.* with *Bedwell et al.* to provide visual representation of generations of profiles so that the user does not have to have any prior understanding of the underlying technique (*see* Abstract).

Regarding claims 42 and 75. (Previously Presented) *Bentley et al.* teach a genetic design method and apparatus as claimed in the parent claims. However, *Bentley et al.* do not teach generating a family tree identifying successive generations of the parent and offspring profiles; and displaying the parent profile, the offspring profile, and the family tree. *Bedwell et al.* do teach generating a family tree identifying successive generations of the parent and offspring profiles; and displaying

the parent profile, the offspring profile, and the family tree (*see* above). It would have been obvious at the time the invention was made to persons having ordinary skill in the art to combine *Bentley et al.* with *Bedwell et al.* to provide visual representation of generations of profiles so that the user doesn't have to have any prior understanding of the underlying technique.

12. Claims 43 and 76 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Bentley et al.* in view of *Rowland et al.*, "Evolutionary Co-operative Design Between Human and Computer: Implementation of 'The Genetic Sculpture Park'.", 2000.

Regarding claims 43 and 76. (Previously Presented) *Bentley et al.* teach a genetic design method and apparatus as claimed in the parent claims. *Bentley et al.* do not teach displaying at least one of the profiles as a three-dimensional image. However, *Rowland et al.* do teach displaying at least one of the profiles as a three-dimensional image (*see*, p. 76, col. 1, §2.1, Fig. 3). It would have been obvious at the time the invention was made to persons having ordinary skill in the art to combine *Bentley et al.* with *Rowland et al.* to provide a 3-D visual representation of profiles in order to view a design from different angles.

13. Claim 129 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Bentley et al.* in view of *Miller* (USPN: *3,880,499).*

Regarding claims 129. (New) *Bentley et al.* teach a genetic design method as claimed in the parent claim. *Bentley et al. do not* teach the physical structure is one of an airplane, a ship, a

train and a toy. *Miller* does teach the physical structure is one of an airplane, a ship, a train and a toy (*see* col. 1, lines 36-38). It would have been obvious at the time the invention was made to persons having ordinary skill in the art to combine *Bentley et al.* with *Miller* to form a stepped prism composite structure..

Allowable Subject Matter

14. The following is a statement of reasons for the indication of allowable subject matter: Claim 95 has been amended, adding functional detail, which indicates the allowability of claims 95-127.

The following is an examiner's statement of reasons for allowance: The amendments of claim 95 have added functional detail not disclosed in the best prior art for the application: *Bentley et al.*, *Faccenda et al.*, *Bedwell et al.*, and *Rowland et al.*, or other prior art that could be applied:

Arci et al. (USPN 5,761,381),

Koza et al. (USPN 5,867,397), and

Shackleford et al. (USPN 5,970,487).

Particularly, none of the above references disclose a computer-implemented graphical user interface comprising: an icon for selecting at least one segment of the divided segments and an icon for evolving the parent profile.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

15. Applicant's arguments filed March 29, 2007 have been fully considered but they are moot, based on new grounds of rejection.

Correspondence Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan H. Brown, Jr. whose telephone number is 571-272- 8632. The examiner can normally be reached on M-F 0830-1700. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Knight can be reached on 571-272-3687. The fax phone number for the organization where this application or proceeding is

assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Anthony Knight
Supervisory Patent Examiner
Tech Center 2100

Nathan H. Brown, Jr.
June 14, 2007